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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,714	04/10/2001	Donald Ray Denton	PARK.P0148US	1788
49458	7590	01/25/2006	EXAMINER	
DON W. BULSON 1621 EUCLID AVENUE / 19TH FLOOR RENNER, OTTO, BOISSELLE & SKLAR, LLP CLEVELAND, OH 44115			CECIL, TERRY K	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 01/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/829,714

Applicant(s)

DENTON ET AL.

Examiner

Mr. Terry K. Cecil

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 66-79 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 66-79 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. 0106.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

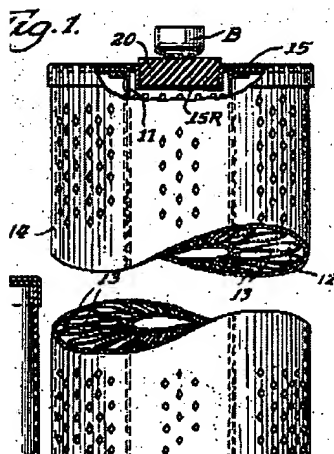
1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

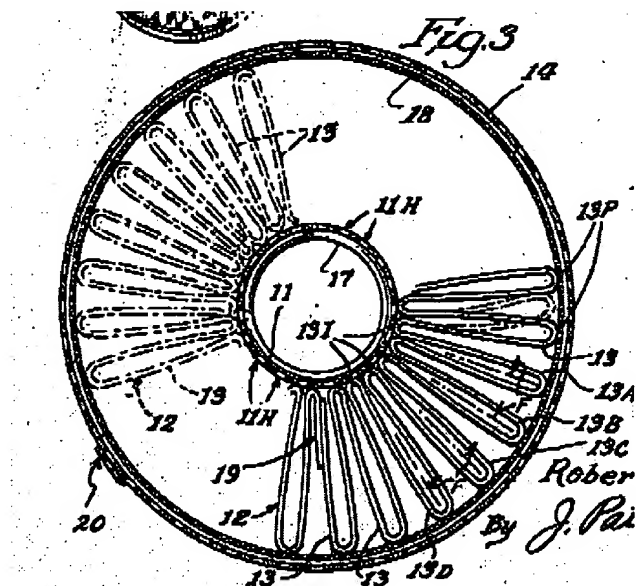
2. Claims 66-75 and 77-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacDonnell (U.S. 3,516,549) in view of MacDonnell (U.S. 3,506,475) and Kahlbaugh et al. (U.S. 6,165,572) and Miller et al. (U.S. 5,552,048). MacDonnell '549 discloses a filter element including pleated filter media 13 and an exoskeleton support screen 14 having a width approx.



equal to the axial dimension of the filter media. The element is characterized by the absence of support structure surrounding the support screen [as in claim 66].

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MacDonnell '549 doesn't teach the screen being thermally-bonded to the radially-outer peaks of the filter media, providing an at least 50% open flow area, and providing a tight array of attachment points supporting the pleats in an appropriately spaced and non-collapsed condition, but such is taught by MacDonnell '475. MacDonnell '475 teaches a fuel filter for removing



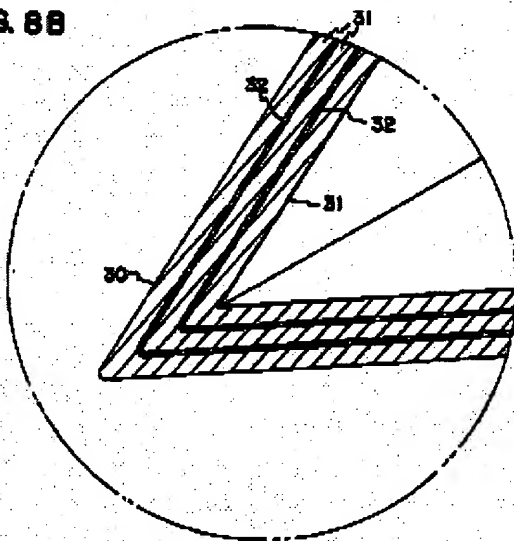
particulates as small as 5 microns or smaller (col. 1, lines 45-46; col. 2, lines 37-38) [as in claims 77-78]. The filter is cylindrical (figure 1) and includes longitudinally-extending pleats without an endoskeleton for support. An exoskeleton 18 in the form of a netting is attached to each of the outer pleats by an thermo-setting adhesive and a heating plate

(col. 5, lines 26-40) [as in claim 66]. The filter includes about 9.2 pleats per diameter inch (60 pleats/6.5 diameter inches, see col. 9, lines 26-27) [as in claim 67]. As indicated in col. 9, lines 1-4, the netting 18 is for mechanically-ganging the pleats together and has a large-sized mesh to insure *full flow* action through the filter (it is obvious that such would require at least 50% open flow area to allow for the desired full flow through the filter; the exact flow area percentage is a matter of optimization for the desired filter operating characteristics) [as in claim 66]. It is considered that it would have been obvious to one ordinarily skilled in the art at the time of the invention to have the bonded exoskeleton support screen of MacDonnell '475 for the exoskeleton of MacDonnell '549, since '475 teaches the benefit of ganging the pleats to cause a flexing action preventing a permanent pleat collapse.

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MacDonnell '475 teaches a pleated formed of fibrous sheet material that can be any one of or a combination of materials, including cotton, wood or *synthetic* (cellulose-free) fibers; but he does not teach a fiberglass (or polymer) filtration layer sandwiched between inner and outer layers of non-woven polymer.

The modified MacDonnell doesn't teach filter *layers* of only cellulose-fiber-free and woven-mesh-free layers that consist of essentially inner, outer, and filter layers but such is taught by Kahlbaugh. Kahlbaugh teaches a multi-layer fibrous pleated media for filtering gases or liquid

FIG. 8B

including fuel (col. 4, lines 48-52; col. 29, lines 25-56), wherein any of the inner layers are sandwiched between adjacent layers and wherein the layers are made of nonwoven polymer fibers (e.g. polypropylene or polyamide) or fibers of glass (col. 16, lines 61-63) [as in claims 66-69 and 71]. Kahlbaugh also teaches fibers with the "Reemay" trademark, as in the applicant's specification; preferred arrangements having a pleat density of 1-

15 pleats/per diameter inch (col. 25, lines 10-16); and an example filter construction consisting of a 3-layer pleated media of micro-glass fibers that demonstrates the superiority over a cellulose-type media (see Experiment 4, col. 36). It is considered that it would have been obvious to one ordinarily skilled in the art at the time of the invention to have the pleated multi-layer media of Kahlbaugh as the media of the modified MacDonnell, since Kahlbaugh teaches

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the benefit of a filter media that can be specifically configured and constructed to provide relatively long life in relatively efficient systems (col. 7, lines 9-13), e.g. the filter can have an efficiency of 99% in fuel filtering systems (col. 29, lines 40-45).

Kahlbaugh also teaches that each coarse layer sandwiching a fine fiber layer is no greater than 0.030 inches (col. 15, lines 30-35) and preferably .001-.010 (col. 3, lines 55-57)[as in claims 70-71].

As for claim 79, it is contended that the invention of MacDonnell as modified above to have the claimed filter media would have the ability to perform as a coalescer element.

Though the modified MacDonnell doesn't teach the support 18 to include a seam allowance, he teaches outerwrap 14 to include a seam allowance 20 (figure 3) such that would skilled in the art would know to include a seam allowance when manufacturing the element when the support 18 is initially in sheet form. MacDonnell doesn't teach the support to be thermally-bonded to the pleats. However, such is known in the art of Miller. As shown in figure 9 and explained in col. 11, line 59 to col. 12, line 6, Miller teaches his exoskeleton to be made of a polymeric mesh (thermally-bondable) that is heat-bonded to his filter pleats. It is considered that it would have been obvious to one ordinarily skilled in the art at the time of the invention to have the exoskeleton of MacDonnell '475, as modified by MacDonnell '549 and Kahlbaugh to be made of the material as in Miller, since Miller teaches the advantage of not requiring adhesive, which would save material costs and simplify manufacture. Miller also teaches the concept of

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overlapping (figure 6) and extending the support the full axial length [as in claims 73-74]. It is considered that it would have been obvious to one ordinarily skilled in the art at the time of the invention to having the support of MacDonnell to have overlapping (a seam allowance) as in Miller in order to have the benefit of provide adequate support for the filter element during operation. Upon modification, the lateral seam of support 18 would extend parallel to the longitudinal axis of the filter media and would itself be heat-fused [as in claim 75]. As for claim 72, the relative spacing between e.g. the longitudinal screen cords of support 18 and the pleat spaces thereof is considered to be within ordinary skill in view of Millers teaching that gird size is chosen depending upon “the properties of the fluid to be filtered, the flow rate, and other factors” as taught by Miller in col. 11, lines 63-65.

3. Claim 76 is rejected under 35 U.S.C. 103(a) as being unpatentable over MacDonnell, as modified above, and in further view of Wylie et al. (U.S. 6,331,223). Wylie teaches a screen material that is made of PVC coated fiberglass (col. 1, line 66 to col. 2, line 6. It is considered that it would have been obvious to one ordinarily skilled in the art at the time of the invention to have the modified screen of MacDonnell to be made of the material of Wylie, since Wylie teaches the benefit of a screen material that is heat-fused and that is most popular (which would have the benefit of likely availability).

Response to Arguments

4. Applicant's arguments with respect to the new claims have been considered but are moot in view of the new grounds of rejection.

- Applicant's new limitations requiring the filter element to be characterized by the absence of a support structure around the support screen and to have the support screen to be the axial length of the filter media is taught in the newly applied MacDonnell '475.
- Despite applicant's remarks to the contrary, the purpose of the netting 18 of MacDonnell is to gang the pleats together to prevent a collapsed condition wherein a collapsed pleat contacts and blocks the filter surface of the next adjacent pleat that leads to serious loss in filter capacity (col. 8, lines 42-46). The netting is attached in a relaxed but *slack-free* mounting such that when a pleat is in danger of the aforementioned collapsed condition, tension is transmitted to the adjacent pleats 13A-13D and a positive return movement is effected to the collapsing pleat (col. 4, lines 45-55; col. 8, lines 26-66). Applicant's argument that the netting is not an exoskeleton because it doesn't support the pleats is not convincing. Does applicant believe that the claimed intended use of the exoskeleton "to support the pleats in an appropriately spaced and non-collapsed condition" in claim 66 means that pleat is incapable of any movement or flexing during use of the filter regardless of operating pressure? If so, such is not supported by applicant's specification. Most particularly, the collapsed condition applicant wishes to prevent is deformed pleats (folded-over and/or bunched against one another)¹—which is the same goal as MacDonnell. Further evidence that the netting exostructure provides support to the pleated filter material is found in col. 9 of MacDonnell,

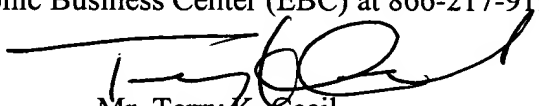
¹ Page 2, lines 2-3.

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which teaches that because of the netting, operating pressures of 125 psi rather than the conventional 60 psi are possible before a bypassing condition is necessary. In addition, nothing in Kahlbaugh gives reason to be that the layered, pleated filter structure thereof would destroy the operation of MacDonnell nor the flexing operation therein. Rather, it is contended that MacDonnell would benefit from the enhanced durability and efficiency taught by Kahlbaugh.

5. Contact Information:

- Examiner Mr. Terry K. Cecil can be reached at (571) 272-1138 at the Carlisle campus in Alexandria, Virginia for any inquiries concerning this communication or earlier communications from the examiner. Note that the examiner is on the increased flextime schedule but can normally be found in the office during the hours of 8:30a to 4:30p, on at least four days during the week M-F.
- Wanda Walker, the examiner's supervisor, can be reached at (571) 272-1151 if attempts to reach the examiner are unsuccessful.
- The Fax number for this art unit for official faxes is 703-872-9306.
- Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Mr. Terry K. Cecil
Primary Examiner
Art Unit 1723